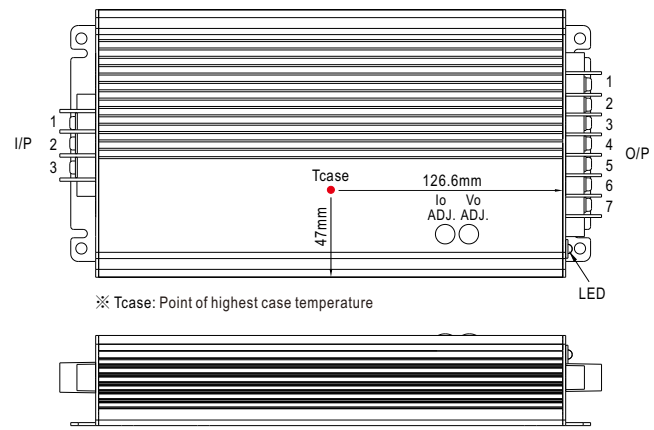
HEP-600C

USER'S MANUAL

SPECIFICATION

MODEL		HEP-600C-12	HEP-600C-24	HEP-600C-48
OUTPUT	BOOST CHARGE VOLTAGE	14.4V	28.8V	57.6V
	FLOAT CHARGE VOLTAGE	13.6V	27.2V	54.4V
	VOLTAGE ADJ. RANGE	11.5 ~ 15.1V	23 ~ 30.2V	46.1 ~ 60.5V
	CURRENT ADJ. RANGE	17.5 ~ 35A	10.5 ~ 21A	5.2 ~ 10.5A
	RECOMMENDED BATTERY CAPACITY(AMP HOURS)(Note 2)	135 ~ 400AH	70 ~ 210AH	35 ~ 105AH
	BATTERY TYPE	Open & Sealed Lead Acid		
	OUTPUT CURRENT	35A	21A	10.5A
INPUT	VOLTAGE RANGE	90 ~ 264VAC 127 ~ 373VDC		
	FREQUENCY RANGE	47 ~ 63Hz		
	POWER FACTOR (Typ.)	PF>0.98/115VAC, PF>0.95/230VAC, PF>0.93/277VAC at full load		
	EFFICIENCY (Typ.)	93.5%	94.5%	95.5%
	AC CURRENT (Typ.)	7A / 115VAC 3.3A / 230VAC 2.9A / 277VAC		
	INRUSH CURRENT (Typ.)	COLD START 70A(twidth=1010μs measured at 50% Ipeak) at 230VAC		
	LEAKAGE CURRENT	<0.75mA / 240VAC		
PROTECTION	OVER VOLTAGE	16.5 ~ 20.5V	32.5 ~ 36.5V	68 ~ 73V
		Protection type : Shut down o/p voltage, re-power on to recover		
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover		
FUNCTION	REMOTE ON/OFF CONTROL	Power on : "Hi" >2 ~ 5V or Open circuit Power off : "Low" <0 ~ 0.5V or Short circuit		
	5V STANDBY	5VSB : 5V@0.5A ; tolerance ±5%, ripple : 100mVp-p(max.)		
ENVIRONMENT	WORKING TEMP.	-40 ~ +70℃ (Refer to "Derating Curve")		
	WORKING HUMIDITY	20 ~ 95% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH		
	TEMP. COEFFICIENT	±0.05%/℃ (0 ~ 60℃)		
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 72min. each along X, Y, Z axes		
SAFETY & EMC (Note.3)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved		
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC		
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH		
	EMC EMISSION	Compliance to EN55022 (CISPR22), radiation class A, conduction class B, EN61000-3-2,-3		
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, light industry level, criteria A		
OTHERS	MTBF	73.1K hrs min. MIL-HDBK-217F (25℃)		
	DIMENSION	280*144*48.5mm (L*W*H)		
	PACKING	3.9Kg; 4pcs/16.6Kg/0.9CUFT		
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. This is Mean Well's suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation. 3. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.			



※ Tcase: Point of highest case temperature

AC Input Terminal Pin No. Assignment

Pin No.	Assignment
1	FG ⏚
2	AC/L
3	AC/N

DC Output Terminal Pin No. Assignment

Pin No.	Assignment	Pin No.	Assignment
1	RC+	4,5	-V
2	RC- & GND	6,7	+V
3	+5VSB		

Safety Guidelines:

1. Keep the HEP-600C away from spark or flame to avoid danger of explosion.
2. While charging batteries in series, do not mix old and new batteries in the same series.
3. Before charging, please verify that the charging voltage and current of the HEP-600C are suitable for the prospective battery.
4. Please do not stack any objects on the case of the HEP-600C. Please make sure case temperature is under 75°C to maintain proper heat dissipation in order not to affect product lifetime.
5. Do not try to use the HEP-600C to charge non-rechargeable batteries or frozen batteries.
6. This charger may possess high temperature during operation. Please do not touch the case.
7. If the FG connection on the AC input terminal cannot be connected to PE (protective earth), then the chassis will need to be grounded or the leakage current may harm the users who touch the case.
8. When connecting or disconnecting wires, please ensure the charger is OFF.

9. Under normal operating conditions, the HEP-600C has a 5 year warranty including free repairing services. If failure is caused by man or natural disaster then this service is available at a cost.

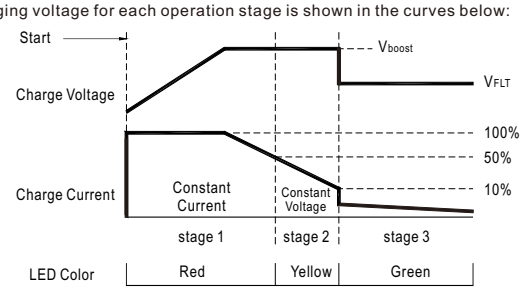
⚠ Warning: Before connecting a battery, please make sure the polarities are correct to avoid damaging the charger

Assembly Procedure:

1. Please make sure the charger is OFF before connecting the battery to the output terminal. Choose a cable with suitable wire gauge according to the charging current to connect between the charger and the battery. Battery polarity must be connected correctly: Terminal(+) to Battery(+); Terminal(-) to Battery(-), and take notice that the positive and negative polarities are not shorted.
2. After applying AC to the charger, check the color of the LED indicator. If it is red, then the battery is being charged ; If the LED is green, then the battery is already fully charged.

Status under general operation:

At the beginning stage of operation, the charger provides the largest current with 14.4Vdc of output voltage(for 12V batteries) to charge batteries, the LED indicator will lighten in red. After a period of time (probably a couple of hours, based on the capacity of the batteries), the charging current will decrease gradually. When the charging current is below 50% of the largest current, the LED indicator will turn yellow . After reducing to 10% of its maximum value, the charger will go into "float charge" stage. Output voltage will drop to 13.6V and the LED indicator will turn to green. The relationship between charging current and charging voltage for each operation stage is shown in the curves below:



Model	HEP-600C-12	HEP-600C-24	HEP-600C-48
Vboost	14.4V	28.8V	57.6V
VFLT	13.6V	27.2V	54.4V

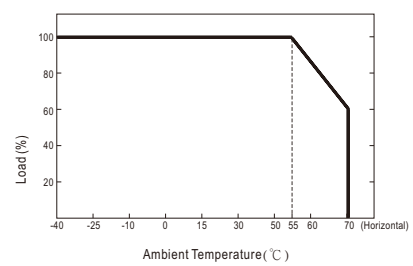
Note: When charging a fully charged battery, it is normal if the LED indicator is either constant green or flashing as (1)RED→YELLOW→LED OFF→GREEN

2. This charger is equipped with output voltage and current adjusting features, that is, the output voltage and output current parameters can be adjusted by the user via internal potentiometers. Io ADJ. is used to adjust the current while Vo ADJ. can be used to adjust the output voltage (VFLT). The adjustable range is as follows:

Model	HEP-600C-12	HEP-600C-24	HEP-600C-48
Voltage Adj. Range	11.5 ~ 15.1V	23 ~ 30.2V	46.1 ~ 60.5V
Current Adj. Range	17.5 ~ 35A	10.5 ~ 21A	5.2 ~ 10.5A

⚠ Caution: Vo ADJ. should be adjusted while the charger is not connected to a battery. The adjustment will also affect the Vboost voltage. For example if the original VFLT was 13.6V, Vboost 14.4V, adjusting VFLT during no load to 13.2V will also adjust Vboost to 14V. Before adjusting the voltage, users should inquire battery manufacturer what voltage is suitable for charging to prevent over or under charging the battery.

Charging current and operating ambient temperature curve is shown in the figure below:



Output wire gauge selection:

Select appropriate wire gauge according to charging current. The minimum requirements are in the table below.

⚠ Warning: Small or inappropriate wiring will cause the wire to overheat and cause possible fire hazard

AWG	CROSS SECTION(mm^2)	Max.Current(A) UL1015(600V 105℃)
12	3.309	22
14	2.081	12
16	1.309	8
18	0.823	6

Recommended capacity of battery:

Applicable Battery Type: Lead Acid

Model	Recommended Capacity of Battery
HEP-600C-12	135-400Ah
HEP-600C-24	70-210Ah
HEP-600C-48	35-105Ah

Note: 1. When the capacity of battery is larger than the recommended value, charging time will become longer but no harm will come to the battery.
2. If there are doubts on the allowable charging current for the battery, please refer to the technical data provided by the battery manufacturer or inquire the battery manufacturer.

Troubleshooting:

Any inappropriate use or unauthorized modification to the product may cause damage or shock hazard. If you are not able to clear the failure condition according to the following instructions, please contact us or your nearest distributor for repair service.

Failure State	Possible Reasons	Recommended Solutions
No output voltage	Output is reverse connected	Return charger for repair
	Over Temperature Protection	Make sure the ventilation is not blocked and the ambient temperature is not too high.
Has been charging for an extended amount of time but cannot reach float stage (green LED)	Output wire is too small	Choose an appropriate wire
	Battery is old or damaged	Change to a new battery

MEAN WELL ENTERPRISES CO., LTD.
No.28, Wuquan 3rd Rd., Wugu Dist., New Taipei City 248, Taiwan (R.O.C.)
http://www.meanwell.com

1JJ8HEP-600C